ABSTRACT

An apparatus and a method for controlling a converter of electronic power supply energy embodied for example as a boost converter or as a boost converter with a power factor correction (PFC) or being used as a DC to DC converter that is running in a discontinuous mode and which is using an equation to calculate the point of time of the zero current state of the storage inductor based on the ON time of the shunt switch and the voltages at the source and the load side. This method achieves a maximum power transfer by recharging of the storage inductor right after the zero current state is reached. The accuracy of the voltage measurement is increased by calibration of the source and load voltage dividers. Minimizing distortion and harmonics is achieved by a fine adjustment of the energy transfer through fine-tuning of the pulse width of the switch overcoming the limitations of discrete time steps in clocked digital systems by toggling between neighboring ON time values of the switch.